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04/05/2000

Stephen S. Jackson

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EXAMINER

PHAN, HANH

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/543,223	<b>Applicant(s)</b> JACKSON ET AL.	
	<b>Examiner</b> Hanh Phan	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 02/12/2007.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5-10, 13-18, 21-24, 30, 31, 37, 38, 44, 45, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gfeller et al (US Patent No. 6,424,442) in view of Doucet et al (US Patent No. 6,348,986) and further in view of Dewberry et al (US Patent No. 6,507,425).

Regarding claims 1, 9, 17, 30, 31, 37, 38, 44, 45, 49 and 50, referring to Figures 1-20, Gfeller et al. teaches a method of processing a data signal for transmission to a remote device, the method comprising:

producing a signal (i.e., Figs. 1, 3, 5, 7-12, 14, see from col. 4, line 45 to col. 7, line 65);

converting the signal to an outgoing signal, the outgoing signal being a wireless optical signal (i.e., Figs. 1, 3, 5, 7-12, 14, see from col. 4, line 45 to col. 7, line 65);

transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions, a first copy being transmitted by

a first directional transmitter and a second copy being transmitted by a second directional transmitter, the first and second transmitters having non-identical transmission directions (i.e., Figs. 1, 3, 5, 7-12, 14, see from col. 4, line 45 to col. 8, line 22).

Gfeller et al. differs from claims 1, 9, 17, 30, 31, 37, 38, 44, 45, 49 and 50 in that he does not specifically teach the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus and receiving the first and second copies of the outgoing signals at different times, and synchronizing a data signal with a clock signal. Doucet et al, from the same field of endeavor, likewise teaches an optical wireless transceiver (Figure 11), Doucet et al further teaches transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions, a first copy being transmitted by a first directional transmitter and a second copy being transmitted by a second directional transmitter, the first and second transmitters having non-identical transmission directions, and the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus and receiving the first and second copies of the outgoing signals at different times (i.e., Fig. 11, col. 15, lines 27-59). Dewberry, from the same field of endeavor, likewise teaches an optical wireless transceiver (Figure 3). Dewberry further teaches that the signal converted to an outgoing signal is a composite signal which is produced by synchronizing a data signal with a clock signal (i.e., Fig. 3, col. 3, lines 40-67 and col. 4, lines 1-12). Based on this teaching, it would have been obvious to one having skill in the

Art Unit: 2613

art at the time the invention was made to incorporate the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus and receiving the first and second copies of the outgoing signals at different times and synchronizing a data signal with a clock signal as taught by Doucet et al and Dewberry in the system of Gfeller et al. One of ordinary skill in the art would have been motivated to do this since allowing transmitting an information signal to multiple users and maintaining the synchronism between the transmitter and receiver during data transfer.

Regarding claims 2, 10 and 18, the combination of Gfeller et al., Doucet et al and Dewberry teaches the outgoing signal is in the infrared spectrum (i.e., Figs. 1-10 of Geffler et al., Fig. 11 of Doucet et al and Fig. 3 of Dewberry).

Regarding claims 5, 13 and 21, the combination of Gfeller et al., Doucet et al and Dewberry teaches receiving an incoming signal, the incoming signal being an optical signal and having a specified timing signal, the clock signal of the composite signal being synchronized with the specified timing signal (i.e., Fig. 1 of Dewberry).

Regarding claims 6, 14 and 22, the combination of Gfeller et al., Doucet et al and Dewberry teaches wherein the data signal includes at least one of video data and audio data (i.e., Figs. 1-20 of Gfeller et al., Fig. 11 of Doucet et al and Fig. 1 of Dewberry).

Regarding claims 7, 15 and 23, the combination of Gfeller et al., Doucet et al and Dewberry teaches wherein the plurality of copies of the outgoing signal are transmitted through the air (i.e., Fig. 11 of Doucet et al, col. 15, lines 27-59).

Regarding claims 8, 16 and 24, the combination of Gfeller et al., Doucet et al and Dewberry teaches where the different directions overlap (i.e., Figs. 1-20 of Gfeller et al. and Fig. 11 of Doucet et al, col. 15, lines 27-59).

4. Claims 3, 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gefller et al et al (US Patent No. 6,424,442) and Doucet et al (US Patent No. 6,348,986) in view of Dewberry et al (US Patent No. 6,507,425) and further in view of Ota et al (US Patent No. 5,986,790).

Regarding claims 3, 11 and 19, Gfeller et al. as modified by Doucet et al and Dewberry teaches all the aspects of the claimed invention except fails to teach amplifying the outgoing signal. Ota from the same field of endeavor, likewise teaches an optical wireless transceiver (Figures 10-14). Ota further teaches amplifying the outgoing signal (i.e., Fig. 12, col. 12, lines 9-24). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the amplifying the outgoing signal as taught by Ota in the system of Gfeller et al. modified by Doucet et al and Dewberry. One of ordinary skill in the art would have been motivated to do this since allowing increasing the power level of the signal to a desired level.

5. Claims 4, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gfeller et al (US Patent No. 6,424,442) and Doucet et al (US Patent No.

6,348,986) in view of Dewberry et al (US Patent No. 6,507,425) and further in view of Rutledge (US Patent No. 5,864,625).

Regarding claims 4, 12 and 20, Gfeller et al. as modified by Doucet et al and Dewberry teaches all the aspects of the claimed invention except fails to teach encrypting the composite signal prior to converting it to the outgoing signal. However, Rutledge in US Patent No. 5,864,625 teaches encrypting the composite signal prior to converting it to the outgoing signal (i.e., Fig. 1, col. 3, lines 6-67 and col. 4, lines 1-14). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the encrypting the composite signal prior to converting it to the outgoing signal as taught by Rutledge in the system of Gfeller et al. modified by Doucet et al and Dewberry. One of ordinary skill in the art would have been motivated to do this since allowing a secure optical communications link.

6. Claims 25-29, 32-36, 39-43 and 46-48 are rejected under 35 U.S.C. 103(a) as being anticipated by Gfeller et al (US Patent No. 6,424,442) in view of Doucet et al (US Patent No. 6,348,986).

Regarding claims 25, 32 and 39, referring to Figures 14-16 and 22, Gfeller et al. teaches a method of processing data received from a remote device, the method comprising:

receiving a plurality of copies of a single optical signal (i.e., Fig. 14, col. 7, lines 47-67 and col. 8, lines 1-22), the copies created by the remote device, a first copy being transmitted by a first directional transmitter and a second copy being transmitted

Art Unit: 2613

by a second directional transmitter, the first and second transmitters having non-identical transmission directions, the optical signal being a wireless optical form of a first data signal;

converting the plurality of copies of the optical signal into a plurality of second data signals, each second data signal having data from one of the copies of the optical signal (i.e., Figs. 14 and 22, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28 );

storing the plurality of second data signals in memory (i.e., Figs. 14 and 22, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28) ; and

reconstructing the first data signal from the plurality of second data signals in memory (i.e., Figs. 14 and 22, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28).

Gfeller et al differs from claims 25, 32 and 39 in that he fails to specifically teach receiving, at different points in time, a plurality of copies of a single optical signal. Doucet et al, from the same field of endeavor, likewise teaches an optical wireless transceiver (Figures 6A, 6C, 7 and 11), Doucet et al further teaches transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions, a first copy being transmitted by a first directional transmitter and a second copy being transmitted by a second directional transmitter, the first and second transmitters having non-identical transmission directions, and the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus and receiving the first and second



Art Unit: 2613

copies of the outgoing signals at different times (i.e., Figs. 6A, 6C, 7 and 11, col. 12, lines 35-67, col. 13, lines 1-27 and col. 15, lines 27-59). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving, at different points in time, a plurality of copies of a single optical signal as taught by Doucet et al in the system of Gfeller et al. One of ordinary skill in the art would have been motivated to do this since allowing increasing the amount of light collected and supplied to the photodetector.

Regarding claims 26, 33 and 40, the combination of Gfeller et al. and Doucet et al teaches the act of reconstructing comprises:

designating one of the plurality of copies of the optical signal as a primary optical signal, the second data signal in memory that represents the primary optical signal being a primary second data signal;

retrieving the primary second data signal; and

if the primary second data signal is incomplete, then retrieving additional data of the first data signal from at least one of the other second data signals in memory (i.e., Figs. 14 and 22 of Gfeller et al, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28 and Figs. 6A, 6C, 7 and 11 of Doucet et al, col. 12, lines 35-67, col. 13, lines 1-27 and col. 15, lines 27-59).

Regarding claims 27, 34 and 41, the combination of Gfeller et al. and Doucet et al teaches the optical signal is an infrared signal (i.e., Figs. 14-16 of Gfeller et al and Figs. 6A, 6C, 7 and 11 of Doucet et al).

Regarding claims 28, 35 and 42, the combination of Gfeller et al. and Doucet et al teaches the plurality of copies of the optical signal are received through the air (i.e., Figs. 14-16 and Figs. 6A, 6C, 7 and 11 of Doucet et al).

Regarding claims 29, 36 and 43, the combination of Gfeller et al. and Doucet et al teaches the first data signal includes at least one of audio data and video data (i.e., Figs. 14-16 of Gfeller et al and Figs. 6A, 6C, 7 and 11 of Doucet et al).

Regarding claim 46, the combination of Gfeller et al and Doucet et al teaches at least two of the plurality of copies of the optical signal are received from different directions (i.e., Figs. 6A, 6C, 7 and 11 of Doucet et al).

Regarding claim 47, referring to Figures 14-16, Gfeller et al. teaches a system for transmitting data signals, the system comprising:

- a first network device having a first transponder (i.e., Fig. 14, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28) ;

- a second network device having a second transponder (i.e., Fig. 14, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28), the first and second transponders each utilizing wireless optical signals to communicate,

- the first transponder being configured to transmit a first copy of an optical signal in a first direction; and

- the second transponder being configured to transmit a second copy of the same optical signal in a second direction, wherein the first and second directions are non-identical (i.e., Fig. 14, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28).

Gfeller et al. differs from claim 47 in that he does not specifically teach the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus. Doucet et al, from the same field of endeavor, likewise teaches an optical wireless transceiver (Figure 11), Doucet et al further teaches transmitting a plurality of copies of the outgoing signal, at least two copies of the outgoing signal being transmitted in different directions, a first copy being transmitted by a first directional transmitter and a second copy being transmitted by a second directional transmitter, the first and second transmitters having non-identical transmission directions, and the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus (i.e., Fig. 11, col. 15, lines 27-59). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the first directional transmitter transmits in a first cone of focus, the second directional transmitter transmits in a second cone of focus as taught by Doucet et al in the system of Gfeller et al. One of ordinary skill in the art would have been motivated to do this since allowing transmitting an information signal to the multiple users.

Regarding claim 48, the combination of Gfeller et al. and Doucet et al teaches the second transponder is configured to receive at least one of the plurality of copies of the optical signal (i.e., Fig. 14, col. 7, lines 47-67, col. 8, lines 1-22, col. 9, lines 49-67 and col. 10, lines 1-28 and Fig. 11 of Doucet et al, col. 15, lines 27-59).

***Response to Arguments***

7. Applicant's arguments with respect to claims 1-50 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

Art Unit: 2613

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**